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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,949	09/04/2003	Stephen B. Brown	7162-70	9001
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EXAMINER				
JONES, STEPHEN E				
ART UNIT				
2817				
PAPER NUMBER				

DATE MAILED: 05/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/656,949

Applicant(s)

BROWN ET AL.

Examiner

Stephen E. Jones

Art Unit

2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2,9,10,14,21 and 22 is/are allowed.
- 6) ☒ Claim(s) 1,3-8,11-13,15-20 and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

Claim 15 is objected to because of the following informalities:

It appears that the phrase "according to claim 12 further" has been inadvertently omitted from the claim, especially since the claim status is listed as "(Original)".

Also, it appears that the term --to-- should be inserted after the term "line" to improve the grammatical form. Appropriate correction is required.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 12, 13, 15, 16, 18-20, and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Moller (of record).

Moller teaches an integrated circuit including: a transmission line which is tuned (i.e. related to changing frequency) for impedance matching and delay with a fluid dielectric channel, the fluid having a chosen dielectric constant (i.e. permeability), that is in a serpentine pattern (see Fig. 4 and Col. 1, lines 14-15 and 25-30) (Claim 19); the fluid can be selectively changed/added, replaced or mixed (i.e. an industrial solvent since it is a mixed fluid) (e.g. see Col. 3, lines 35-40) (Claims 12-13, 20, and 23); the

device is on a ceramic substrate (e.g. see Col. 2, lines 45-50) (Claims 15-16); and inherently the fluid has a dielectric that is different from the substrate so as to provide the matching (Claim 18). Also, the portion of the Moller channel that traverses the line can be considered to have segments since the term "segment" can be broadly read as a portion of a line between two points in the line. Thus the Moller channel can be considered to have numerous segments that are arbitrarily designated based on one's perspective.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
4. Claims 1, 3-5, 7-8, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moller in view of Smith (both of record).

Moller teaches an integrated circuit as described above (including the subject matter of Claims 3, 5, 7, and 8). Also, note that the functionality recited in claims 4 and 11 are inherent functionality of the Moller device, especially since the Moller device structure is the same as the presently claimed structure and also is providing impedance matching in the same manner). However, Moller does not explicitly teach a fluid control system (Claims 1 and 11).

Smith teaches a fluidic phase shifter including that fluid computers are well-known for controlling the operation of fluidic electrical communications devices.

It would have been considered obvious to one of ordinary skill in the art to have included a fluidic computer control such as taught by Smith to have controlled the fluid processing based on sensors (including impedance, time delay and permittivity sensors since Moller is concerned with these properties), because it would have provided the advantageous benefit of a means for monitoring the circuit characteristics, thereby suggesting the obviousness of such a modification.

5. Claims 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moller in view of Benavides (both of record).

Moller teaches an integrated circuit as described above. However, Moller does not explicitly teach that the ceramic can be LTCC.

Benavides teaches a chip packaging of microfluidic devices including that the base substrate layer can be made of, e.g., alumina or a low temperature co-fired ceramic.

It would have been considered obvious to one of ordinary skill in the art to have substituted a low-temperature co-fired ceramic material such as taught by Benavides in place of the insulating layer of Moller, especially since Moller teaches that the layer can be alumina (see Col. 2, lines 41-49) and Benavides teaches that low-temperature co-fired ceramics and alumina are art-recognized equivalent/alternatives for a base substrate/layer means for electrical circuit packages.

6. Claims 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moller and Smith as applied to claims 1 and 3 above, and further in view of Benavides (all of record).

Moller and Smith teach an integrated circuit as described above. However, they do not explicitly teach that the ceramic can be LTCC.

Benavides teaches a chip packaging of microfluidic devices including that the base substrate layer can be made of, e.g., alumina or a low temperature co-fired ceramic.

It would have been considered obvious to one of ordinary skill in the art to have substituted a low-temperature co-fired ceramic material such as taught by Benavides in place of the insulating layer of the Moller/Smith combination, especially since Moller teaches that the layer can be alumina (see Col. 2, lines 41-49) and Benavides teaches that low-temperature co-fired ceramics and alumina are art-recognized equivalent/alternatives for a base substrate/layer means for electrical circuit packages.

Response to Arguments

7. Applicant's arguments filed 3/8/05 have been fully considered but they are not persuasive.

Applicant argues that Moller does not teach a plurality of fluid channel segments that traverse the line.

Applicant's argument is not convincing, especially since the term "segments" is a broad term and any line can be arbitrarily considered to have many segments based on one's perspective (see the above rejections for more detail).

Allowable Subject Matter

8. Claims 2, 9, 10, 14, and 21-22 are allowed.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

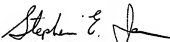
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen E. Jones whose telephone number is 571-272-1762. The examiner can normally be reached on Monday through Friday from 8 AM to 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on 571-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SEJ


STEPHEN E. JONES
PRIMARY EXAMINER